

**REMARKS**

Claims 1-83 are pending in the application. Claims 84-92 are withdrawn.

Applicant previously elected the Group I claims 1-83 with traverse, and the remaining claims 84-92 were withdrawn without prejudice.

Claims 1-83 stand rejected for obviousness-type double patenting over claims 1-5 of US Patent No. 6,686,435. We respectfully traverse the rejection for the reasons explained below.

According to MPEP §804 the Doctrine of Double Patenting seeks to prevent unjustified term extension of a patent where upon expiration the public should be free to use the claimed invention and modifications that were obvious to those skilled in the art at the time the invention was made. The Doctrine does not presently apply where the claims are nonobvious over both the '435 patent claims and the '435 patent disclosure, and the claims could not have been presented at the time the '435 invention was made.

The '435 patent constitutes a significant advance in the art; however, the present claims are nonobvious species-variations that are patentably distinct from the '435 genus patent claims. It is inappropriate to apply the doctrine of obviousness-type double patenting where the present claims could not have been presented at the time the '435 patent application was filed. This is because the '435 patent does not disclose or appreciate the narrower range of aggregate content that provides superior performance of polyurethane concrete which is presently described and claimed. By way of example, the present claims recite a range of aggregate content, which is stated alternatively in the broader claims as 10% to 30% by weight resin or 70% to 90% by weight aggregate. These particular ranges are critical to suitable use as polyurethane concrete, as supported by the materials analysis results of the present specification in

the various Tables, Figures and the discussion thereof. The '435 patent does not particularly support the claimed aggregate ranges and, consequently, does not support use of filled polyurethane materials as concrete. In another example, the recitation of pea gravel in claims 25 and 26 is unrelated to the '435 patent disclosure and claims, particularly where pea gravel is generally unsuited for use in electrical components.

The '435 patent claims encompass a genus of filled polyurethane, whereas the present claims distinguish the genus by reciting a narrower species that is suitable for use as concrete. Where the '435 patent describes and claims generic use of filled resins as electrical insulators and electrical components, the possibility of using filled resins as concrete was never considered or appreciated. Claims 1-5 of the '435 patent recite method and product using a polyurethane with a filler (especially silica) that is the reaction product of a polyol with an isocyanate, e.g., as in claim 1 of the '435 patent:

the reaction product of a natural oil-based polyol component and an isocyanate, wherein said polyol is made by hydroxylating epoxidized natural oil with a catalytic amount of fluoboric acid, an alcohol, and water with the amount of water being about 10% to 30% by weight of all the components and wherein said natural oil-based polyol component is comprised of silica and a natural oil-based polyol in at least about a 2:1 weight ratio.

Example 10 of the '435 patent reports the sole instance of using a polyol-isocyanate casting with filler. The disclosure does not specify the particular range that is now claimed, reciting:

The natural oil-based polyol and the isocyanate are combined in approximately stoichiometric quantities. It is acceptable to use up to about 10% in excess of the stoichiometric quantity of either of these components.

In claims 1 and 3 of the '435 patent, the filler content encompasses amounts significantly greater than or less than the aggregate content that is presently claimed. Thus, assuming *arguendo* that the filler of the '435 patent constitutes the presently

claimed “aggregate,” in either ‘435 claim 1 or ‘435 claim 3 there emerges a genus-species distinction where the ‘435 patent claims and disclosure are directed towards a genus and the present claims relate to a concrete-specific species addressing a narrower range of aggregate content that has a significantly different utility.

The ‘435 patent disclosure is not concerned with concrete and is devoid of any mention of concrete. See, for example, the Abstract (electroinsulating casting resins), column 1 at lines 41-49 (cast electrical components), column 9, lines 20-26 (dielectric strength, electrical insulation); column 10, lines 28-33 (electrocoils, insulators, dry transformers, other electrical components); column 10, lines 51-54 (appearance of soft rubber to rigid plastics with excellent electrical properties). With these purposes in mind, the ‘435 patent disclosure describes the extent of filler that may be used (see the ‘435 patent in column 9 at lines 14-16):

The filler may be combined with the natural oil-based polyol in about 1 to 200% by weight of the natural oil-based polyol.

In context of the ‘435 patent disclosure, there is no reason to select a narrower range from among the equivalent possibilities presented by an aggregate content of from 1% to 200% by weight of the polyol content, other than to vary the nature of electrical components, such as thermal conductivity and dielectric property (col. 9, lines 23-24). There is no teaching whatsoever that such materials may be suitable for use as polyurethane concrete, indeed, there is no equivalency as such in randomly selected concentrations within the range from 1% to 200% of the polyol content where only the narrower range that is presently claimed is suitable for use as concrete. This distinction rises to the level of having patentable merit.

Even if the Office has stated a *prima facie* case that the present claims are an obvious variations of the ‘435 patent claims 1-5, and here we make no such admission

especially where the claims could not have been earlier presented, the *prima facie* case is rebutted by the experimental evidence shown in the present specification and Figures. The advantages of the claimed narrower aggregate range were not appreciated or known at the time of filing the '435 application. By virtue of the claimed aggregate range being supported by the evidence of the present disclosure, the claims are commensurate in scope with the evidence of unexpected utility. *In re Peterson*, 65 USPQ2d 1379, 1383 (Fed. Cir. 2003) has recently affirmed these principles of law:

In general, an applicant may overcome a *prima facie* case of obviousness by establishing "that the [claimed] range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Geisler*, 116 F.3d at 1469-70, 43 USPQ2d at 1365 (alteration in original) (quoting *In re Woodruff*, 919 F.2d at 1578, 16 USPQ2d at 1936). That same standard applies when, as here, the applicant seeks to optimize certain variables by selecting narrow ranges from broader ranges disclosed in the prior art. *See In re Geisler*, 116 F.3d at 1470, 43 USPQ2d at 1365 ("Only if the 'results of optimizing a variable' are 'unexpectedly good' can a patent be obtained for the claimed critical range." (quoting *In re Antoine*, 559 F.2d 618, 620, 195 USPQ 6, 8 (CCPA 1977))); *In re Wertheim*, 541 F.2d 257, 267, 191 USPQ 90, 100 (CCPA 1976) (recognizing that "ranges which overlap or lie inside ranges disclosed by the prior art may be patentable if the applicant can show criticality in the claimed range by evidence of unexpected results"). Moreover, the applicant's showing of unexpected results must be commensurate in scope with the claimed range. *See In re Greenfield*, 571 F.2d 1185, 1189, 197 USPQ 227, 230 (CCPA 1978) ("Establishing that one (or a small number of) species gives unexpected results is inadequate proof, for 'it is the view of this court that objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support.'" (quoting *In re Tiffin*, 448 F.2d 791, 792, 171 USPQ 294, 294 (CCPA 1971))).

The present claims meet each element in the above points of law. Patentability is not precluded, e.g., after *Wertheim* noted above, even where the claimed aggregate percentage (10% to 30% by weight) lies within the range disclosed and claimed in the '435 patent (1% to 200% of polyol weight). The unexpected utility of a concrete composition, which may be made by the claimed method, was not appreciated in the

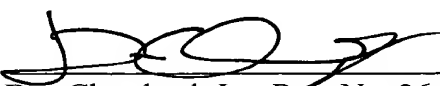
'435 patent. Concrete is different in kind from the electrical components of the '435 disclosure. If in the view of the Office, the selection of a superior aggregate range constitutes optimizing a variable, the discovered range produces unexpectedly good results where the new materials may be used as concrete having up to four times the strength of traditional concrete with cement mad of limestone. Furthermore, the setting time may be catalytically controlled to provide a rapidly setting concrete.

The '435 patent constitutes nonanalogous art. Those skilled in the art of concrete design would not likely turn to the art of electrical component design when determined to investigate new concrete compositions, and so the discovery that is presently claimed is surprising in nature.

The significance of concrete strength is evident in Figs. 7-35 of the application as filed, particularly in Figs. 33-35 which show significantly higher strengths than conventional high strength concrete and, for example, in Fig. 26 which shows advantages of polyurethane concrete over epoxy and polyester resin concrete.

The foregoing response meets all of the requirements set forth in the Office Action dated June 25, 2004. The Commissioner is authorized to charge any additionally required fees to deposit account 12-600. Applicants' attorney urges Examiner Lechert to telephone if a conversation could expedite prosecution.

Respectfully submitted,  
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